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# Biotechnology Notes

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July 1988

Biotechnology Notes, a compilation of news events, program activities, and meeting announcements, is prepared for members of the Committee on Biotechnology in Agriculture by the Office of Agricultural Biotechnology.

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**RABIES VACCINE FIELD TRIAL UNDER APHIS REVIEW**—The veterinary biologics staff of APHIS is evaluating a request by the Wistar Institute, Philadelphia, Pa., for permission to conduct a limited field trial for a new vaccine that prevents rabies in raccoons. The vaccine is a vaccinia virus which has been genetically engineered to include a gene that codes for a rabies virus surface antigen.

This would be the first U.S. field trial of a vaccine delivered to wildlife through a bait system. Similar field trials in wildlife are now underway in Belgium and have already been approved in France. The same vaccine was administered to cattle in Argentina about a year ago.

This would also be the first category 3 vaccine approved by USDA. A category 3 vaccine is one in which a vector that carries genetic material is derived from a foreign virus. APHIS is now developing a policy statement describing how that agency reviews category 3 viruses.

Although the exact location of the field trial has not been decided, Wistar is looking at several islands off the east coast of the United States that are generally uninhabited. Wistar hopes to begin the trials this fall.

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**FS UNDERTAKING GENE MAPPING PROJECTS**—How light, disease, and climate affect plant growth has been one of nature's best kept secrets. Now, researchers at the Pacific Southwest Forest and Range Experiment Station in Berkeley, Calif., are beginning to unravel the clues. Using restriction fragment length polymorphisms and other DNA technologies, the team is trying to characterize and isolate individual genes in various populations of North American conifer trees. In particular, they are studying the genes responsible for environmental stress responses, light regulation, and pathogen-host interactions.

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ARS "SHOOTING" FOR GROWTH--For the first time, researchers at ARS's Tissue Culture and Molecular Biology Lab, Beltsville, Md., have introduced an engineered gene for production of a plant hormone -- cytokinin -- that causes cells to form shoots.

Using the tobacco and cucumber plants as models, they introduced a gene that had been altered structurally to raise the level of expression. This engineered gene caused the tobacco cells to greatly increase their level of cytokinin and cause profuse shoot production. The researchers say they will now try this technique on soybean cells, which cannot regenerate shoots through conventional in vivo lab techniques. If successful, this new procedure may be useful for corn, wheat, and rice.

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ES JOINS COOPERATIVE EXTENSION SERVICE TO BEAM BIOTECHNOLOGY--Plans are underway to produce a televideo on biotechnology that will be carried by satellite to every state extension system in the country. The purpose is to improve understanding of the implications of biotechnology among extension clientele. ES is working with Virginia Polytechnic Institute and State University, Blacksburg, Va., to produce the one- to two-hour video, which will include guest speakers and materials used at the four "Biotechnology and the Public" regional conferences. A phone-in question and answer segment may also be included in the presentation. The televideo conference is planned for early Fall.

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GRANTING GRANTS AT CSRS--Many of the contributions made to agriculture through biotechnology are directly linked to CSRS's Competitive Research Grants Program in the Office of Grants and Program Systems. It is a program widely respected by the scientific community and one which continues to attract a high caliber of scientific expertise.

Except for a few refinements, USDA grants are handled almost identically as those that are reviewed by the National Science Foundation. CSRS appoints a chief scientist who must now be or has been a highly respected bench scientist. Traditionally, chief scientists have been members of the National Academy of Sciences.

Twenty-two program managers, each an active research scientist, are selected every year and serve under the chief scientist. Program managers, in cooperation with permanent staff scientists, select peer panels from the best scientists in the country to review research proposals. Panel membership varies from six to 14 people.

There are six general areas in which competitive grants are awarded: insect pest science, plant science, animal science, biotechnology, human nutrition, and forestry. All grants are awarded entirely on the basis of scientific merit.

For FY '87, CSRS received 1,653 proposals and awarded 406 grants (25%) for a total of \$44,225,148.

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ON THE LEGISLATIVE FRONT--Although the House Appropriation Committee Report for the FY '89 budget recommended \$950,000 for a biomedical clinic at the University of Texas, the Senate did not concur in this action. Research would include the use of genetic engineering to reduce the amount of saturated fats in pigs and cattle. The committee also recommended \$100,000 for an Agricultural Biotechnology Facility at Virginia Tech, as well as lesser funds for other facilities.

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OAB WELCOMES FOUR "DETAILEES"--Dr. Althaea Langston, Dr. Graham Purchase, Dr. David MacKenzie, and Dr. Fred Kuchler have been detailed on a part-time, temporary basis to OAB to assist on a number of projects. Langston, a veterinarian and epidemiologist, came from APHIS's Biotechnology and Environmental Coordination Staff. She provides OAB a regulatory perspective on current biotechnology projects. Purchase, formerly a veterinarian on ARS's National Program Staff, is currently a scientific advisor to the Beltsville Area Director. MacKenzie, a plant pathologist from Louisiana State University's Experiment Station, is an expert on biosafety issues. Kuchler, an agricultural economist with ERS's Resources and Technology Division, evaluates the economic impact of biotechnology.

The detailees are helping OAB to identify and analyze biotechnology issues. Each is also responsible for contributing a chapter to a field testing handbook.

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NEW ASSOCIATION FORMED--The American Biotechnology Association (ABA), headquartered in Princeton, N.J., will focus primarily on serving the needs and interests of ordinary citizens who want to know more about biotechnology. According to ABA president Warren Hyer, the association will provide factual information "at a general interest level" and a forum for public discussions on "what constitutes the appropriate socially responsible development of biotechnology."

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#### IN CASE YOU WEREN'T THERE . . .

On June 1-2, a USDA-sponsored conference on "The Future of Commercial Biotechnology" was held at the Brookings Institution. The focus was on the extent that government regulations and other policies foster or inhibit biotechnology product development. Some speakers noted that agricultural research is not sufficiently funded, the regulations should not preclude academic field testing of genetically engineered organisms, and that a higher caliber of people is needed in agricultural research. Congressman George E. Brown noted that congressional concerns are shifting from environmental concerns to social and ethical issues. Drs. Bentley and Gilles participated as speakers at the conference.

On June 6, the Georgia Agricultural Experiment Stations held a centennial symposium. Guest presenter, Dr. Alvin Young, spoke on "The Role of Biotechnology in Agriculture's Future." He emphasized that new technologies need to be developed and perfected and new generations of scientists educated. "Our aim in the Department of Agriculture is to support initiatives which manage change well and to catalyze opportunity so that it in turn has maximum likelihood to contribute long-term economic growth."

At the Food and Drug Law Institute's seminar on food biotechnology regulation, held locally on June 6, one presenter said that food safety is a bigger issue to consumers than the environmental aspects of biotechnology, and that safety assurances have to come from government and the scientific community.

Virginia Polytechnic Institute and State University sponsored a National Pesticide Symposium, June 8-10. The objective of the symposium was to bring together individuals from government, industry, and academia to discuss risk assessment, biotechnology, alternative approaches to pesticide use, EPA's activities, and public perception and education. Several participants noted that the issue of risk from pesticide use is one where the level of public information is low and the potential for anxiety high. Therefore, the task of agricultural scientists and policy makers should be to communicate risks and benefits impartially to the public to gain its confidence and support.

OAB hosted a working session on June 10 to address the question: "What items should be considered in drafting a USDA policy statement on agricultural biotechnology research and international scientific exchange?" The 11 attendees came from ARS, OAB, OICD, FS, and CSRS. Eighty-eight aspects of this question were identified and then distilled into four major categories: the benefits to the United States of international scientific exchange; reciprocity; consistency with other policies, guidelines, and regulations; and economic issues. After the panel agrees on a final draft, the directors of OAB and OICD will use the report as "points to consider" in formulating a policy statement. After further review and approval, the policy statement will be made available to the scientific community.

The Bioenergy Coordinating Committee of the Department of Energy met June 14 with USDA representatives to discuss biotechnology activities associated with the Biofuels and Municipal Waste Technology Division's Short Rotation Woody Crops and Herbaceous Energy Crops Programs.

ABRAC members, liaisons, the media, and the public met June 23-24 in the Williamsburg Room to discuss the proposed draft research guidelines, development of a research handbook, and the status of NBIAP. After making a few modifications to the committee's working procedures and hearing an overview of Auburn University's transgenic fish proposal, members began discussing the guidelines. They divided up into three working groups that focused on definitions (e.g., biotechnology), principles of bio-containment/confinement, and the scope of the guidelines. The dialogue will continue when each group reconvenes at USDA on July 28, July 28-29, and August 11-12, respectively.

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PUBLICATIONS NOW AVAILABLE:

"Agricultural Biotechnology and the Public", a summary of the four regional conferences, prepared by USDA's Office of Public Liaison. Call 447-2798 for copies.

"Biotechnology: Science at Work in Agricultural Industry", by Jasper S. Lee, Professor and Head, Department of Agricultural and Extension Education, Mississippi State University. This easy-to-read publication is designed for teachers of agriculture and science who want to inform their students about the meaning, importance, and opportunities available in biotechnology. A teaching plan is included. For copies, call USDA's Office of Public Liaison on 447-2798.

"National Biological Impact Assessment Program", a concise brochure describing the NBIAP program, research activities, organization and structure is now off-press and can be obtained by calling the information office at 447-5741.

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CALENDAR OF MEETINGS FOR JULY:

July 6-8: 21st Century Prospects for Biotechnology in Agriculture and the Environment. Prague, Czechoslovakia. Contact: Ronald E. Cape, Chairman, Cetus Corp., 1400 Fifty-Third St., Emeryville, Calif. 94608.

July 17-22: 8th International Biotechnology Symposium. Paris, France. Contact: Secretariat, VIIIe Symposium de Biotechnologies, 14 rue Mandar, 75002 Paris, France.

July 25-29: Western Forest Genetics Association Scientific/Technical Meeting. Davis, Calif. Contact: Robert D. Westfall, Chairman, Local Arrangements, RRO #1, Box 1171, Davis, Calif., 95616.

July 27-29: 7th Summer Symposium in Molecular Biology—Viruses, Pathogens, and Model Systems. University Park, Pa. Contact: Dee Reeves, Symposium Program Coordinator, 208 South Frear Laboratory, The Pennsylvania State University, University Park, Pa. 16802.

July 31-Aug. 4: Risk Assessment in Agricultural Biotechnology. Davis, Calif. Contact: Donna Hyatt, Dean's Office, College of Agriculture and Environmental Science, University of California, Davis, Calif. 95616.

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Suggestions for items to include in future issues of Biotechnology Notes may be sent to Marti Asner, Room 508-A, Administration Building, or call 447-8429.

